DOCUMENT RESUME

ED 032 147 RC 002 883

Outdoor Recreation Space Standards.
Department of the Interior, Washington, D.C. Bureau of Outdoor Recreation.
Pub Date Apr 67
Note-73p.
Available from-Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402 (0-267-787, $0.45).
EDRS Price MF-$0.50 HC Not Available from EDRS.
Descriptors-Athletic Activities, Camping, *Community Resources, Environmental Influences, *Facility Guidelines, Outdoor Education, Parks, Playgrounds, *Recreational Activities, *Recreational Facilities, Space Utilization, *Standards

With increased concern in recent years for the quality of our cultural and physical environment, there has been a corresponding increase in the need for information on standards used for planning playgrounds and parks, sports facilities, and outdoor areas for camping and hiking. Standards for various types of outdoor recreational facilities as used or proposed by recreation planners, agencies, and organizations are presented in this publication with emphasis on space requirements. Such standards may be used as guidelines to improve inadequate facilities or to develop new ones. A bibliography of source materials is included so the user can refer to the conditions under which relative requirements were developed. (JH)

ED032147

Outdoor Recreation Space Standards

EC002883

DEPARTMENT OF THE INTERIOR Bureau of Outdoor Recreation

This publication compiles recreation area and facility space standards currently being used by many organizations throughout the United States. It was prepared in response to many requests that the information be gathered and made available. The Bureau of Outdoor Recreation has not adopted, nor does it officially recommend any particular standard reported in this compilation.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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OUTDOOR RECREATION SPACE STANDARDS

April, 1967

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C., 20402 - Price 45 cents

F O R E W O R D

With increased concern in recent years for the quality of our cultural and physical environment, there has been a corresponding increase in the need for information on standards used or proposed by recreation planners, authorities, agencies, and organizations throughout the country. The standards presented in this publication were selected from a wide range of available materials.

Some of the standards which are included were designed and put into use by agencies developing individual recreation areas. Others have evolved for use in developing community-wide or regional park and recreation systems. Such standards may serve as guidelines for improving presently inadequate recreation programs.

Recreation space standards, other than those required for games such as tennis or football, represent relative rather than absolute space requirements. It is important to understand the conditions under which these relative requirements were developed. Standards developed in response to a specific set of resource, land-use, and cultural conditions in one area may not be relevant to another area with a different set of circumstances. Accordingly, individuals considering use of standards listed in this report should read the background of their development in the original published source. In the tables which follow, the number in parenthesis preceding each reference in the first column refers to the full citation of that reference in the bibliography which follows the tables.

Edward C. Crafts
Director

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PARKLAND AND RECREATION AREAS

Reference	Facility	Standard
(69)*Meyer and Brightbill, Community Recreation, pp. 402-404	neighborhood parks and playgrounds	1 acre of neighborhood park for each 1000 persons and 1 acre of neighborhood playground for each 800 persons; or 1 acre of combined park and playground for each 500 persons in a neighborhood. Minimum size is 3 to 5 acres. Park and playground should be within walking distance of every home. Actual service radius in each neighborhood is determined by population density, residential lot sizes, and safety access.
	city-wide parks	Minimum of 4 acres of city-wide parks for each 1000 persons. A city-wide park serves all residents of an urban municipal jurisdiction. Major recreation facilities may include golf course, picnic area, athletic field, etc. Standards for each park are flexible and depend upon need for providing balance to the entire park and recreation system.
	regional parks and reservations	A minimum of 2 acres of regional park per 1000 people. A regional park is a large land and forest reservation, preferably with unique scenic character that serves one or more cities, or part of a large metropolitan region. It is located usually outside corporate boundaries of cities. The park serves three purposes: to preserve a portion of natural landscape; to supplement recreation facilities available in urban areas; and to act as a greenbelt separating cities in a large, highly developed region.

*(This number refers to the full citation for each reference in the bibliography following the tables.)

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Reference	Facility	Standard
(106) Recreation and Open Space in the Onondaga Syracuse Metropolitan Area, p. 19	park development for local areas	Park development includes: (a) 5-6 acres per 1000 people in multi-family communities; (b) 8-9 acres per 1000 people in one-family communities where lot sizes range from 5000 to 15,000 sq. ft.; (c) over 10 acres per 1000 people in lower density one-family areas; and (d) 12 acres of county parks per 1000 people. A county park has a service radius of 15-30 minutes from users' homes.
(56) Kentucky Outdoor Recreation Plan, p. 58	large urban recreation area	15 acres for each 1000 people. Serves a large segment of the urban area. Minimum size of 100 acres.
	regional reservation area	10 acres for each 1000 people. Serves one or more cities. Minimum size of 500 acres.
	statewide recreation area	30 acres for each 1000 people. Serves state and out-of-state visitors. Minimum size of 800 acres.
(126) Tennessee State Planning Commission, Part One, p. 35	regional parks	1 acre of land for each 250 people or one 60-acre regional park for each 25,000 people. Service radius of 45 minutes driving time for most distant user.
	municipal parks	1 acre of land for each 250 people or one 20-acre municipal park for each 5000 people. Park should be located within a 10-minute drive.
(133) Recreation Facilities in Westchester, p. 14	small parks	1 acre for each 1000 people.
(129) Twin Cities Metropolitan Planning Commission, St. Paul-Minneapolis	local and regional recreation area	20 acres for each 1000 people.

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Reference	Facility	Standard
(74) National Park Service, Parks and Recreation for New Mexico	parks, wilderness areas, nature preserves, scientific monuments, historic monuments	15 acres for each 1000 people for local nonurban areas. Service radius of 25 miles or 1 hours drive. 30 acres for each 1000 people for state area. Service radius of 50 miles or 1½ hours drive. 200 acres for each 1000 people for the nation. Located where suitable resources are found.
(17) G. D. Butler, Introduction to Community Recreation	large parks	2½ to 4 acres for each 1000 people. or 40,000 to 50,000 people for each park. Park size of 100 to 300 acres. Service radius of 30 to 60 minutes.
	reservations	A reservation is a large tract of land kept primarily in its natural state, with sections made available for activities such as hiking, camping, picnicking, etc. Serves population of whole urban area and beyond. Size of 100 acres or more. Usually located near boundaries of the city or outside city limits.
	neighborhood park	2 acres of park for each 1000 people in neighborhoods with multiple-family development. 10 acres for each 1000 people in neighborhoods with one- or two-family dwellings. A neighborhood park is primarily a landscape park providing a restful breathing spot. Each park serves a population of 4000-7000.

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Reference	Facility	Standard
(35) Dallas, Texas, Parks and Open Spaces, p. 62	Recommended standards for a park system:	
	playgrounds within urban developments	1 to 2 acres for each 1000 population.
	playfields within urban developments	1 to 2 acres for each 1000 population.
	large parks within urban developments	5 acres for each 1000 population.
	special parks and parkways within urban developments	2 acres for each 1000 population.
	reservations, in outlying areas	10 acres for each 1000 population.
(38) Erie County, Pa. Planning Commission	parks	20 acres per 1000 population.
(115) Sacramento County, Calif., Planning Commission	recreation park	A 200-acre park serves a population of 100,000 and includes: 3 acres of play area for pre-school children. 4 acres of play area for elementary school children. 15 acres of sports field for general use. 3 acres of paved area for court games. 1 acre of concrete multi-use area. 30 acres of family and group picnic and barbecue area.

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Reference	Facility	Standard
		10 acres of open area for special events. 7 acres for amphitheater. 40 acres of natural areas. 15 acres for parking 2000 cars. 25 acres of day and weekend camping areas. 5 acres for clubhouse and recreation center (auditorium). 5 acres for corporation yard. 15 acres of landscaped area. 20 acres of service roads.
(101) New Mexico Comprehensive Plan for Outdoor Recreation, p. 66	in-city recreation parks	Minimum of 16 acres for each 1000 people.
	regional parks	Minimum of 15 acres for each 1000 people.
(99) New Jersey Department of Conservation and Economic Development, p. 9	parks and natural areas (county)	4 acres for each 1000 people.
	low intensive use areas (state parks and forests, fish and game lands, etc.)	20 acres for each 1000 people.
	medium to high intensive use areas (inter-county)	4 acres for each 1000 people.
	neighborhood and community parks	5 acres for each 1000 people.
(9) Outdoor Recreation in Arizona, pp. 77-78	neighborhood parks	2 acres per 1000 population. Recommended size of 5 acres when adjoining a school or 10 acres when separate.
	neighborhood recreation areas	3 acres per 1000 population. Recommended size of 10 acres when adjoining a school or 20 acres when separate.

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Reference	Facility	Standard
	community parks	2 acres per 1000 population. Recommended size of 20 acres when adjoining a school or 40 acres when separate.
	district and regional parks	18 acres per 1000 population.
(104) Oklahoma state outdoor recreation plan, pp. 74-77	area parks	Minimum of 50 acres for each 5000 people. Parks should be located within 15 miles of population served and should include the following for each 5000 people: golf course, 4 acres picnic area, 8 acres tent, trailer, group camping on 5 acres shelter with 1.50 acres hiking with varied amount of acreage boating apparatus with .35 acres children's zoo sport field, 6 acres arboretum flower garden art center drama and concert area parking with 5 acres
	general recreation area	Minimum of 100 acres for each 5000 people. A general recreation area should be located within 25-50 miles of people served and include the following for each 5000 people: golf course, 4 acres picnic area, 8 acres hiking, varied amount of acreage tent camping, 6 acres group camping, varied amount of acreage swimming beach, 4 acres swimming pool, 1 acre horseback trails, varied acreage fishing, varied acreage hunting, varied acreage

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Reference	Facility	Standard
		boat access, varied acreage boat marina, varied acreage mountain climbing, varied acreage canoeing, varied acreage sport field, 8 acres parking area, 5 acres
	natural environment area	Minimum of 50 acres per 5000 people. Area should be located within 50-100 miles of the population served, and include the following for each 5000 people: picnic area, 8 acres tent camping, 6 acres; trailer camping, 6 acres; group camping, varied acreage hiking, varied acreage boat access boat marina sightseeing parking, 1 acre
(11) Athletic Institute, pp. 8-12	neighborhood park-school	Minimum of 15 acres and includes 5 acres for educational purposes, such as a school building, and 10 acres for community recreation.
	large city parks	100 acres or more to serve 5000 people living within walking distance or having access to public transportation.
(94) National Recreation and Park Association, Outdoor Recreation Space Standards, pp. 20 and 24-25	urban recreation areas	Minimum of 10 acres per 1000 people located within an urban area. Includes: neighborhood recreation parks, district recreation parks, and large urban parks. Not more than half of neighborhood and district park area should be for active recreation. The other half should be in shade trees and lawn.
	extra urban open space	15 acres for each 1000 people. Should be located within 1 hour's drive of urban homes.

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Reference	Facility	Standard
	large parks, plus forests and other open space	65 acres for each 1000 people.
(12) Baltimore County, Waterfront Recreation Survey, p. 20	parks adjacent to water	Local park of 3 to 20 acres serving a neighborhood of 4000-7000 people. Major park of 50 to 100 acres serving part of the metropolitan area with a population of 100,000 or more.
(62) P. H. Lewis, Recreation and Open Space in Illinois, p. 108	total regional recreation area	120 acres per 1000 population. Includes: (a) urban recreation area of 7 acres within walking distance. (b) city-wide recreation area of 13 acres with service radius of 1/4 to 1/2 hour. (c) regional park of 40 acres with service radius of 1/2 to 1 hour. (d) reservation of 60 acres with service radius of 1/2 to 2 hours.
(96) Nebraska Game Forestation and Parks Commission, pp. 161-163	recreation land	For metropolitan areas in 1970, 10 acres of land for each 1000 people; in 1980, 15 acres of land. For cities of 5000 to 25,000 population in 1970 and 1980, 15 acres of land for each 1000 people. For cities of 1000 to 5000 population in 1970 and 1980, 20 acres of land for each 1000 people. For villages of less than 1000 population in 1970 and 1980, 25 acres of land for each 1000 people. 60 acres of regional or state outdoor recreation land per 1000 population in 1970; 80 acres per 1000 population in 1980.

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Reference	Facility	Standard
(59) Planning Commission of Lackawana County, Pa., p. 20	community recreation areas	7 acres per 1000 people. Includes: (a) totlots--.50 acre per 1000 people; minimum area, .13 acre; maximum of 2000 persons per facility; service radius 1/4 mile. (b) playgrounds--1.25 acres per 1000 people; minimum area, 3-6 acres; maximum of 4000 persons per facility; service radius 1/4-1/2 mile. (c) playfields--1.25 acres per 1000 people; minimum area, 6-15 acres; maximum of 10,000 persons per facility; service radius 1/2-1 mile. (d) neighborhood parks--1.25 acres per 1000 people; minimum area, 3-6 acres; maximum of 4000 persons per facility; service radius 1/4-1/2 mile. (e) regional or community-wide parks--2.75 acres per 1000 people; minimum area 50 acres; maximum of 20,000 persons per facility, service radius 1-2 miles.
	metropolitan recreation areas	15 acres per 1000 people. Includes: (a) special use areas--3 acres per 1000 people; service radius 10 miles. (b) county parks--12 acres per 1000 people; minimum area, 200 acres; maximum of 50,000 persons per facility; service radius 10 miles.
	state park areas	45 acres per 1000 people, minimum size is 2000 acres, service radius is 25 miles.
(29) Connecticut Development Commission, pp. 24-25	recreation land	40 acres for each 1000 people. Recreation land includes: 10 acres of local outdoor recreation space; 30 areas of regional outdoor recreation facilities.

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Reference	Facility	Standard
(121) South Carolina Wildlife Resources Department, pp. 5-3	regional parks	10 acres per 1000 population. A park of over 500 acres, within 25 miles or 30 minutes' driving time of people served. Park is a natural environment with hiking and nature study trails, cabin and camping areas, multiple-purpose water sports, lake, bridle path, picnicking area, and golf course.
	county park	4 acres per 1000 population. A park of over 100 acres with a service radius of 10 miles or 15 minutes in driving time. This park provides same facilities as regional parks, plus athletic fields, playgrounds, and tennis courts.
	community parks-playfields	3 acres per 1000 population. An area of over 25 acres with a service radius of 2.5 miles. About one-third of area should be devoted to quiet or passive recreation with landscaping, benches, and walkways. The remainder should contain athletic fields, a swimming pool, picnic area, playlots, play equipment, paved game areas, tennis courts, and a spray pool.
	neighborhood parks-playgrounds	2 acres per 1000 population. An area of over 5 acres with a service radius of .5 mile. Facilities provided are same as community parks, except swimming pools, picnic area, and regulation athletic fields are not required.
(28) Connecticut Department of Agriculture and Natural Resources, pp. 40-42	recreational lands	Total public recreation land by planning region should be 70 acres per 1000 population. This includes: (a) 10 acres of parks primarily of municipal significance, located within 15

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Reference	Facility	Standard
		minutes' travel time of population served. Included are playgrounds, neighborhood parks, playfields, large municipal parks and municipal golf courses. (b) 10 acres of parks primarily of regional significance, and located within one-half hour travel time of population served. Areas consist largely of intensively developed state facilities that service the regional population. (c) 10 acres of parks primarily of statewide significance, and located within one hour travel time of population served. (d) 40 acres of land generally of statewide or regional significance. Areas consist largely of extensively developed state forests and other public lands.
(135) Comprehensive Plan for Wisconsin, Outdoor Recreation, p. G-12	state parks, recreation areas and recreational forests	80 acres of nonurban outdoor recreation area for each 1000 people, preferably within day use distance.
	county parks and beaches	15 acres per 1000 population.
	municipal parks	10 acres per 1000 population.
(102) National Recreation and Park Association, A Study of New York City's Outdoor Recreation Needs, Part II, pp. 32,33	total park area	One for each 200 people.
	community parks	One or more per community; one per 80,000 population. Minimal size 10 acres.

PLAY AREAS

Reference	Facility	Standard
(70)*Meyer and Brightbill, Recreation Administration, p. 277	playlots	75 sq. ft. per child. An area 2500 to 10,000 sq. ft., with a minimum of 1500 sq. ft., should serve 40 children per 100 families at one time. Service radius should be a maximum of 1/4 mile; 1/8 mile for high density area.
	playgrounds	150 sq. ft. per child or 1 acre for each 800 people. 3-1/2 to 6 acres, adjacent to elementary school or centrally located in neighborhood. Maximum population to be serviced by a playground should be 5000. Service radius is 1/4 to 3/8 mile or 1/2 mile in low density areas.
	playfields	1 acre for each 800 people or 1-1/4 acre for each 1000 people. One playfield, 10 to 20 acres for each 15,000 to 25,000 population. Service radius should be 1 to 1-1/2 miles. Located adjacent to high school property.
(69) Meyer and Brightbill, Community Recreation, p. 402	totlots	Totlot is 4000 sq. ft. and is located in a sub-neighborhood.
(59) Lackawana County, Pa., Planning Commission	totlots	1/2 acre for each 1000 people. Maximum of 2000 persons per facility. Minimum size of .13 acre, with a service radius of 1/4 mile.
	playgrounds	1-1/4 acre per 1000 people. Maximum of 4000 persons for each facility. Minimum size of 3 to 5 acres, with a service radius of 1/4 to 1/2 mile.

*(See footnote on page one)

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Reference	Facility	Standard
	playfields	1-1/4 acre per 1000 population. Maximum of 10,000 persons for each facility. Size of 6 to 15 acres. Service radius of 1/2 to 1 mile.
(133) Recreation Facilities in Westchester, N.Y., p. 14	totlots	50 sq. ft. per child. Size of 1500 to 5000 sq. ft. with a service radius of 1/8 mile. Includes: play apparatus, paved area, sand box, benches.
	playgrounds	1-1/4 acres of playground per 1000 people. 1 playground of 3 to 5 acres serves 5000 people. Service radius is 1/4 mile in close residential areas; 1/2 mile in open residential areas. Includes: play apparatus, handball court, area for informal play, area for passive recreation, totlot corner, wading pool, landscaping, etc.
	playfield	1-1/4 acres per 1000 persons. 1 playfield serves 20,000 people. Should be 10 to 15 acres in size with a service radius of 1/2 mile in close residential areas and 1 mile in open residential areas.
(125) St. Clair Regional Planning Commission, Michigan	playgrounds	1 acre for each 80 elementary school children.
(35) Dallas, Texas, Parks and Open Spaces, pp. 57, 62	playgrounds	1 to 2 acres for each 1000 persons.
	playfields (include athletic field)	1 to 2 acres for each 1000 persons. At least 1 acre of active play area for each 1000 people. Size of 15 to 25 acres. Located at or near the intersection of major or secondary thoroughfares near center of 4 or 5 sq. mile service area. Service radius

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Reference	Facility	Standard
		should be approximately 1 mile, or 4 to 5 neighborhood units. Similar to service area of a high school. Playfields may include: baseball, football, softball, tennis, playground and other active athletic areas. Possible also is a field house community center and swimming pool. Some facilities may be lighted for night use. Substantial automobile parking is required.
(17) G. D. Butler, Introduction to Community Recreation	community playfields	1 acre per 800 of total population. Playfield should be 15 to 20 acres, and should preferably adjoin a high school site. A playfield should be within 1/2 to 1 mile of every home, and should serve an area comprising about four neighborhoods.
(56) Kentucky Outdoor Recreation Plan, p. 58	playgrounds	2.5 acres for each 1000 people. Minimum of 7 acres. Serves a neighborhood.
	playfields	2.5 acres for each 1000 people. Minimum of 25 acres. Serves a community.
(99) New Jersey Department of Conservation and Economic Development, p. 9	playfields	1.5 acres for each 1000 people.
	totlots and playgrounds	1.5 acres for each 1000 people.
(104) Outdoor Recreation Plan for Oklahoma, pp. 74-77	playgrounds	Minimum of 14 acres for each 5000 people, located within walking distance of population served. Includes: totlot with minimum of .35 acre;

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Reference	Facility	Standard
		apparatus area of .50 acre; play and picnic area with minimum of 4 acres; court game area with minimum of .55 acre; sport field with minimum of 6 acres; swimming pool with .25 acre; shelter or center with .35 acre; area for parking and passive recreation of 2 acres.
	playfield	Minimum of 15 acres for each 5000 people, located within 2 miles of population served. Includes: sport field with 6 acres; community center with .75 acre; swimming pool with .5 acre; court game area with 1.5 acre; picnic area with 2 acres; play area with 1.75 acre; passive recreation and parking area with 2.5 acres.
(103) G. Nez, Urban Land, p. 4	playgrounds	1.5 acres for each 1000 people. Ideal size is 4 acres; minimum size, 2 acres. Service radius of 1/2 mile.
	playfields	1.5 acres for each 1000 people. Ideal size is 15 acres; minimum size, 10 acres. Service radius of 1-1/2 miles.
(102) National Recreation and Park Association, A Study of New York City's Outdoor Recreation Needs, Part II, pp. 32, 33	neighborhood playgrounds	One acre per 800 people, 5 to 14 years old. At schools or in parks, 1 per elementary school. Minimal size, 2 acres. At housing projects, 1 or more per project, minimal size of 1 acre.
	athletic fields	One per 80,000 people. Minimal size of 8 acres.

WINTER ACTIVITIES

Reference	Facility	Standard
(110)*Placer County, Calif. Recreation Committee, p. 35	ski slope	1 acre of ski slope for each 20 skiers.
	snow play	1 acre of slope for each 30 snow players. Density of snow players is held to minimum to facilitate access and parking sites.
(134) Recreation in Wisconsin, p. 73	ski slope	Minimum size of 100 acres with north facing slopes protected by trees in order to cut winds and allow snow to accumulate. Annual snowfall of 60 inches or more, or capacity for making an equivalent in artificial snow.
(21) California Public Outdoor Recreation Plan, Part II, p. 84	ski slope	1 acre of ski slope for each 30 skiers. Parking of 1 acre for each 10 acres of ski slope to accommodate 75 autos.
	snow play	1 acre of slope for each 60 snow players. 1 acre of parking area. 5 acres of snow play slope to accommodate 75 autos.
(135) Comprehensive Plan for Wisconsin, Outdoor Recreation, p. G-7	ski area	One acre of developed slope per 30 skiers.
(97) Nevada Department of Conservation and Natural Resources	skiing	Average party of 4 persons, 10 parties per acre. 40 persons are accommodated on 1.5 acres. Turnover rate is one.
	snow play	Average party of 4 persons, 20 parties per acre. 40 persons are accommodated on one acre. Turnover rate is 2.

*(See footnote on page one)

Reference	Facility	Standard
(51) Clare A. Gunn, pp. 743-746	winter sports site	Areas with less than 60 inches of snowfall per year depend upon artificially prepared snow. A good winter sports site includes over 80 acres of both hilly and reasonably level land.
	skiing and tobogganing areas	These activities require elevation differences of over 100 feet and slopes from 10 to 60 percent or over. Nearly level but well-drained land is needed for building sites, parking areas, drives and skating rinks.
(80) National Recreation and Park Association, Bulletin no. 36, pp. 8-11	ski areas	The average skier demands 8000 vertical feet of skiing per day. This is four trips on a slope with a 2000 foot vertical drop or 16 trips on a 500 foot slope. The range of skier demands depend upon degree of skill possessed. An average expert skier wants 12,000 vertical feet of skiing per day; an average beginner wants 5600 vertical feet. Vacation-oriented ski areas are characterized by relatively remote location, luxury facilities, variety of terrain, relatively dependable snowfall, and a season that usually has 80 to 85 skiing days. These areas are generally found on larger mountains and include a multi-lift complex and spacious base lodge. Weekend-oriented ski areas are characterized by somewhat limited ski terrain, relative ease of access, and a minimum of supporting facilities. Areas are located in snow belts and are found between population centers and vacation-oriented areas.

Reference	Facility	Standard
		Areas oriented to day skiers are located within an hour's drive of a major population center. They have extremely limited terrain. Ski slopes are measured in terms of vertical descent and overall length. Novice slopes vary from 0% to 20% grade, intermediate slopes from 20% to 35%, and expert class slopes from 35% on up. It is not necessary that all portions of a slope stay within these standards. The minimum width of a slope should be no less than 100 to 250 feet.
(11) Athletic Institute, p. 32	ski slopes	Standards for beginner classes include: (a) flat-top hill area, 50 sq. ft. for each skier, 25 skiers per class; (b) slope about 75 ft. to 100 ft. long, drop in grade of 15 ft. Standards for advanced skier classes include: (a) top of hill about same as for beginners; (b) slope should be about 3 to 1, and 100 ft. to 150 ft. long; (c) width of slope should be minimum of 150. Standards for expert skier classes include: (a) same hill as advanced classes, however, longer and steeper hill is desirable; (b) should be enough downhill length to permit a minimum of three turning movements--for example, 250 ft. on a 3 to 1 slope; (c) greater width required than that of slope for advanced classes.
(82) National Recreation and Park Association, Bulletin no. 38, p. 17	ice skating rink	In a survey conducted, the smallest reported artificial ice skating rink was 70 ft. by 150 ft. and the largest was 150 ft. by 180 ft. The width reported 86% of the time was 85 ft.

Reference	Facility	Standard
		An area of 30 sq. ft. per skater was accepted by rink experts as desirable for determining capacity.
(50) Gabrielsen and Miles, Sports and Recreation Facilities for School and Community, p. 305, p. 295	ice skating rink	25 sq. ft. per person actually skating. Between 3 to 5 hard surfaced tennis courts can be flooded and used for ice skating.

Reference	Facility	Standard
(115)*Sacramento County Planning Commission	9 hole golf course	One 9 hole course for each 25,000 people. Each golf course has 75 acres that include: a) fairways, roughs, greens, and tees, 43 acres. b) clubhouse, .25 acre. c) parking area and service roads, 1.75 acres. d) natural area, 20 acres. e) landscape area, 10 acres.
	18 hole golf course	One 18 hole course for each 50,000 people. Each golf course has 150 acres that include: a) fairways, roughs, greens, and tees, 86 acres. b) clubhouse, .50 acre. c) parking area and service roads, 3.5 acres. d) natural area, 40 acres. e) landscape area, 20 acres.
(24) F. Stuart Chapin, Jr., Urban Land Use Planning	18 hole golf course	One hole of golf for each 3000 people. 100 acres for an 18 hole course. Site size is estimated according to size of facility appropriate to size of region served, facility desired, and parking and service area needed.
(70) Meyer and Brightbill, Recreation Administration: A Guide to its Practices, p. 277	9 hole golf course	One 9 hole of public course for each community of 25,000 people or less. Minimum of 50 acres.
	18 hole golf course	One 18 hole course for each 60,000 people. Minimum of 125 acres.
(21) California Public Outdoor Recreation Plan, Part II, p. 85	9 hole golf course	Minimum size of 60 acres.
	18 hole golf course	Minimum size of 120 acres.

*(See footnote on page one)

GOLF, TENNIS, BASKETBALL, BASEBALL

Reference	Facility	Standard
(122) A Park and Recreation Plan for Ft. Collins, Colo., p. 40	9 hole golf course	Minimum size of 40 acres.
	18 hole golf course	Minimum size of 150 acres.
(126) Tennessee State Planning Commission, p. 42	9 hole golf course	9 holes of public golf for every 25,000 persons. Size of course is 75 to 90 acres.
(106) Recreation and Open Space in the Onondaga-Syracuse Area, p. 19	golf course	2 acres for every 1000 persons. Located within a county park.
(118) Soil Conservation Service, "Helpful Information about Golf Courses," p. 2	18 hole golf course	18 holes of golf for every 20,000 people. Each additional 18 hole course requires about 30,000 people. A course should not be located over 20 miles from a population center. The land area needed per course ranges from 160 to 200 acres depending upon topography and shape of land. A rule of thumb is: 10 acres per golf hole for average courses. A small course may get by with 5 acres per hole.
(44) FHA Bulletin, "Handy Facts on Golfing," pp. 1-3	9 hole golf course	Minimum size of 45 acres.
	par 3 golf course	Minimum size of 20 acres.
	18 hole golf course	Minimum size of 140 acres.
(85) National Recreation and Park Association, Bulletin no. 47, pp. 5-12	par 3 golf course	A regulation par 3 course should have 20 to 35 acres. Departments operating successful par 3 courses reported surrounding populations that ranged from 30,000 to 1,000,000 with the average population being 334,000.

Reference	Facility	Standard
(94) National Recreation and Park Association, Outdoor Recreation Space Standards, p. 41	18 hole golf course	One golf course for every 50,000 people.
(73) National Golf Foundation, Inc. p. 3	9 hole golf course	An 80 acre golf course located in a gently rolling area with some trees is preferable. Minimum of 50 acres.
	18 hole golf course	160 acres for a good course. Minimum of 110 acres.
(135) A Comprehensive Plan for Wisconsin, Outdoor Recreation, p. G-6	9 hole golf course	Can accommodate 350 persons per day.
	18 hole golf course	Can accommodate 500 to 550 persons per day.
(28) Connecticut Department of Agriculture and Natural Resources p. 42	golfing	Instant capacity of 1% of state population on public or semi-public golf courses. If public courses alone are considered, a desirable figure should be at least .25%.
(37) H. C. Eckhoff, p. 306	9 hole golf course	Size of course is 50 to 80 acres.
	18 hole golf course	One 18 hole daily fee type course for every 25,000 people. Size of course is 110 to 160 acres.
(103) G. Nez, Urban Land, p. 4.	18 hole golf course	One 18 hole course for every 50,000 people. Ideal size of course is 120 acres. Golf course may be located within a community or district park.
(96) Nebraska Game, Forestation and Parks Commission, p. 189	golf courses	For rural areas and cities of less than 30,000 population: one golf hole per 1000 county population. (Population within a 25 mile service

Reference	Facility	Standard
		radius may be substituted for the county standard) For metropolitan areas, one golf hole per 2000 people.
(102) National Recreation and Park Association A Study of New York City's Outdoor Recreation Needs, Part II, p. 33	golf course	One per 250,000 people; minimum size, 9 holes.
	tennis court	one per 10,000 population.
	baseball diamond	Official regulation diamonds, one per 30,000 population. Junior diamonds, one per 3000 population, 5-14 years old. Softball diamonds, one per 10,000 population
	handball courts	One per 10,000 population.
	football and soccer fields	One per 80,000 population.
(69) Meyer and Brightbill, Community Recreation, p. 278	tennis court	One court for every 2000 persons. Ideal size is 2 acres.
(126) Tennessee State Planning Commission, Part One, pp. 46-47	tennis court	One court for every 2000 persons. Site dimensions are 50 ft. x 120 ft. for singles and 60 ft. x 120 ft. for doubles.
(122) A Park and Recreation Plan for Ft. Collins, Colo., p. 49	tennis court	1500 sq. ft. per player and 2 to 4 players per court. Regulation playing dimensions. Site dimension of 6000 sq. ft.
(103) G. Nez, Urban Land, p. 4	tennis, outdoor basketball and other court sports	1 acre for every 5000 persons. Located in playfield-community park. Ideal size is 2 acres.
(126) Tennessee State Planning Commission, Part One, p. 47	baseball diamonds, softball diamonds	1 baseball diamond for every 6000 people. 1 softball diamond for every 3000 people.

BOATING, CANOEING, AND WATER SKIING

Reference	Facility	Standard
(115)*Sacramento County Planning Commission	boating	1 boat for every 30 persons.
(12) Baltimore County, Waterfront Recreation Survey, p. 22	boating	1 ramp on 1-1/2 acres for every 125 boat owners if boaters average 8 trips a year. 21,000 sq. ft. of parking space per ramp, assuming a parking lot capacity equal to maximum ramp capacity.
(21) California Public Outdoor Recreation Plan, Vol. II, p. 84	trailered boats	1 launch facility per 160 surface acres of boating water. Parking space for 75 autos and boat trailers for each launching facility.
	non-trailered boats	Mooring or slippage space for 100 boats at one time. These boats need 160 acres of boating water. Parking space to park 50 autos for each 100 moored boats.
	boat access unit	1 boat access unit capable of launching one boat at one time, serving 125 trailered boats or storage facilities berthing, mooring and the like for 100 non-trailered boats. 75 boats will operate from one access unit on the season's peak day and 50 boats on an optimum day. Service radius of 25 miles for day-use boaters; 75 to 175 miles for weekend-users; 135 to 250 miles for vacation boaters.
(23) Carbon County, Pa. (Mauch Chunk Watershed), table 5	boating	5 acres for each 2000 people. Minimum of 5 acres. Provide for 5 launching ramps, boat storage and rentals.

*(See footnote on page one)

BOATING, CANOEING, AND WATER SKIING

Reference	Facility	Standard
(31) Corps of Engineers, Grand Chariton and Little Chariton Report, p. 1	boating and water skiing	1 acre of water per boat, 4 people per boat.
	boat ramp	40 boats per lane of launching ramps. Parking area for 40 cars.
(32) Corps of Engineers Manual, p. 3	boat ramp	Minimum of 1 ramp per project with 5000 to 40,000 annual visitors; or 1 per 40,000 annual visitors or at any one area with 40 boat launchings per peak-day; or the number of ramps required to prevent not more than 1 hour's delay in launching.
(110) Placer County, Calif. Recreation Commission, pp. 7-9	boat launching lane	5 acres of water surface per boat. One lane per 25 boats.
(119) Soil Conservation Service, Recreation Memorandum-3, Supplement-3, p. 1	anchored fishing boats	4 to 7 boats per acre of water area.
	trolling fishery boats	2 to 4 boats per acre of water area.
	power and sail boats	3 acres of water area per boat.*
	water skiing	5 acres of water area per boat.* *(these figures exclude the 300-foot strip around the shores zoned against these uses except at access points)
(106) Recreation and Open Space in the Onondaga-Syracuse Area	boating	1/4 acre of water for every 1000 persons. Boating area located in a county park that allows 12 acres for every 1000 population.

BOATING, CANOEING, AND WATER SKIING

Reference	Facility	Standard
(134) Recreation in Wisconsin, p. 48	trip canoeing	Average number of canoes a day is 6, with 2 men per canoe. Average daily trip distance is 15 miles. Streams must have an average flow of 100 cubic feet a second in order to be generally suitable for canoeing.
(132) Outdoor Recreation Plan for the State of Vermont, p. 93	boating	Access to a lake of 100 acres or more within 1/2 hour's drive of every family.
(10) Statewide Comprehensive Outdoor Recreation Plan for Arkansas	boating	One launching ramp for each 150 acres of water.
(88) National Recreation and Park Association, Bulletin no. 54, pp. 6-9	marinas	The main difference in marina designs will be governed by the size and design of boats using the area. The Outboard Boating Club of America states that optimum size for marina development ranges upward from 25 acres. Generally, the ideal land area required for marinas is the same as that for mooring boats or 1-1/4 times that size.
(16) BOR, Water-Oriented Outdoor Recreation; Lake Erie, p. D-9	boating	1633 sq. ft. parking per car and trailer including ramp facilities. Turnover factor of 2. Three people per car and boat.
(103) G. Nez, Urban Land, p. 4	major boating activities	100 acres for every 50,000 population. Ideal size of 100 acres and over. May be located within a district park, regional park or reservation.
	row boating and canoeing	1 lake or lagoon for every 25,000 people. Ideal size of 20 acres of water area. May be located in a community park or special regional reservations.

BOATING, CANOEING, AND WATER SKIING

Reference	Facility	Standard
(97) Nevada Department of Conservation and Natural Resources	trailered boats	Average party of 3 persons. 40 units accommodate 120 persons on one acre. Turnover rate is one. One 12 ft. wide ramp accommodates 40 boats per day.
	moors or slips	Average party of 3 persons. 40 units accommodate 120 persons on .5 acre.
(135) Comprehensive Plan for Wisconsin, Outdoor Recreation, pp. G-10, G-11	water skiing	One person per 13.3 acres of water. Estimate 3 persons per boat, 20 acres per boat may be adequate, but 40 acres per boat is more desirable.
	boating	One person per 8 acres of water surface. Estimating 2.5 persons per boat, or 20 acres per boat. Small lakes with restricted motor sizes could support more than one boat per 20 acres.
	canoeing	One person per 1/4 mile of stream. Estimating 2 persons per canoe or 1/2 mile of stream per canoe. Larger streams probably could handle one canoe per 1/4 mile of stream or more.
(28) Connecticut Department of Agriculture and Natural Resources, p. 41	boating	Instant capacity of 1% of state population at state or other public boating access areas and on available freshwater and saltwater bodies.
(45) Federal Power Commission, p. 2	boat launch ramp	At least one ramp is provided for federal power projects having 5000 to 40,000 annual visitors; or at any one area with 40 boat launchings projected per peak-day. Ramps have an optimum width of 12 ft. with the vertical limits from the elevation of the 5-year flood frequency elevation or 3 ft. above the normal operating pool, whichever is higher, to at least 4 ft. below the permanent pool.

BOATING, CANOEING, AND WATER SKIING

Reference	Facility	Standard
		Ramps generally service 160 surface acres of water available for boating. Each ramp has at least one 75-foot vehicular turn-around.
(15) Bureau of Reclamation, p. 27	boat access	Two dual launching ramps per 40 boats, 40 boat trailers, auto parking spaces and buffer strip.
(63) Louisiana Parks and Recreation Commission, p. 3.0.15	boat ramp	A boat ramp occupies one acre of ground space and can accommodate launching and retrieving of about 40 boats per day per launching lane. 60 cars with boat trailers can be parked in area.
	motor boat area	It takes 20 acres of water to support one power boat. 13 boats in the water would require 260 surface acres of open water to support a ramp. With 2.5 persons per boat, an optimum day with 40 launchings would produce 100 user days per ramp or 100 user days per acre of land and .385 user days per acre of water. This amounts to .01 acre of land and 2.6 acres of water per user day.
	canoe area	Estimating 2 persons per canoe per 1/2 mile of stream. Larger streams could probably handle one canoe per 1/4 mile of stream.
	water skiing area	One ski boat requires 40 acres of water, therefore, 13 ski boats would require 520 acres of water to support one ski boat ramp. With an average of three persons per ski boat, a ramp would produce 120 activity days during an optimum day use, or 120 user days per acre of land and .23 user days per acre of water. This amounts to .0083 acres of land and 4.33 acres of water per user day.

Reference	Facility	Standard
(31)*Corps of Engineers Report on Grand Chariton and Little Chariton Rivers	boat fishing	2.5 persons per boat and boat trailer. 1 acre of water surface for every 50 fisherman. 1 lb. of fish per fisherman day. Fish production should be 50 lbs. an acre each year.
(110) Placer County, Calif. Recreation Commission pp. 1-9	stream fishing	1 mile of stream for every 10 persons.
(127) Tennessee State Planning Commission, Part II, Vol. II, p. 24	fishing	Public fishing access area of 10 to 40 acres averaging at least 15 acres with 750 feet of water frontage. One per 300 acres of water surface.
(134) Wisconsin Department of Resource Development, p. 41	fishing	Nationwide average in 1958 of fish caught was 2.2 lbs. per day.
(108) ORRRC Report No. 7, pp. 78, 83, 84	fresh water fishing	Location should be within 60 to 69 miles or 2 hour's drive from urban coastal areas. Average catch in 1960 was 1 lb. of fish per angler per day from inland waters.
(118) Soil Conservation Service, Book of Recreation Resources, pp. 1, 6	fishing	Minimum of 3 surface acres per lake. Lake should be located within an hour's drive or approximately 50 miles of a city of 20,000 persons or the equivalent in smaller communities, and should be within 5 to 10 miles of a good highway with an all-weather road to property.
	fishing in anchored boats	4 to 7 boats per acre.
	fishing in trolling boats	2 to 4 boats per acre.

*(See footnote on page one)

FISHING

Reference	Facility	Standard
(16) BOR, Water-Oriented Outdoor Recreation: Lake Erie Basin, p. D-9	fishing	1633 sq. ft. of parking area per car and trailer including ramp facilities. Turnover factor of 1.5. An average of 2 persons per car and boat.
(103) G. Nez, Urban Land, p. 4	fishing, rowing, and canoeing	1 lake or lagoon for every 25,000 people.
(135) Comprehensive Plan for Wisconsin, Outdoor Recreation, p. G-10, G-11	fishing area	One person per 3.6 acres of surface water. Estimating 2.2 persons per boat and 8 acres per boat.
	stream fishing	One fisherman per mile of stream.
	river fishing	One fisherman per 1/4 mile, approximately 3 acres per fisherman.
(63) Louisiana Parks and Recreation Commission, p. 3.0.16	boat fishing	A fishing boat requires 8 acres of water. 13 fishing boats require 104 acres of water to support one boat ramp. An average of 2.2 persons per boat would produce 88 optimum user days per 40 fishing boats during one day, or 88 persons per acre of land and .846 user days per acre of water. This would be .0114 acres of land and 1.182 acres of water per user day.
(28) Connecticut Department of Agriculture and Natural Resources, p. 41	fishing	Instant capacity of 5% of state population at state or other public fishing areas.

SWIMMING

Reference	Facility	Standard
(21)*California Public Outdoor Recreation Plan, Part II, pp. 48, 84	neighborhood pool	One pool for each 3200 people. Pool with 1800 sq. ft. of water surface serves 150 persons at a time.
	community pool	One pool for each 25,000 people. Pool with 4500 sq. ft. of water surface serves 150 persons at a time.
	shoreline--ocean, lake, reservoir, or stream	25 effective feet of shoreline for each 1000 population, accommodates 150 persons per day, and 50 persons at one time. 25 effective feet include: a) 5000 sq. ft. for sunbathing. b) 2500 sq. ft. for buffer and picnic area. c) 1000 sq. ft. for water area for swimming. An effective foot consists of one lineal foot of shore with 100 foot-wide band of water suitable for swimming; 200 foot-wide strip of beach for sunbathing; 100 foot-wide buffer zone for utilities and picnicking.
(69) Meyer and Brightbill, Community Recreation, p. 404	pool	Minimum of 27 sq. ft. of water surface for each swimmer with a ratio of 2 square feet of deck area per square foot of water area. Total number of pools should serve between 3 to 5% of the total population at one time.
(126) Municipal and County Recreation in Tennessee, p. 41	pool	20 sq. ft. of pool and deck area for each 10,000 people in major metropolitan areas.

*(See footnote on page one)

Reference	Facility	Standard
		One pool for each 10,000 people in major metropolitan areas with over 10,000 population. One pool for each 7500 people in cities with between 10,000 and 35,000 population. One pool for each 5000 to 7500 people in cities with 5000 to 10,000 population.
(22) California Committee on Planning for Recreation Park Areas and Facilities, p. 57	regulation pool	A pool in a community recreation park adjoining a junior or senior high school requires: a) 1/2 acre site in a coastal and mountain region. b) 1 acre site in a valley or desert region. A pool located in a separate community recreation park requires: a) 1 acre site in a coastal and mountain region. b) 2 acre sites in a valley or desert region. Space surrounding a pool must be larger in a valley and desert region to accommodate users who remain there several hours for sunbathing and general relaxation.
(11) Athletic Institute, pp. 102-113	pool	A minimum of 27 sq. ft. of water per swimmer for recreational swimming; 45 sq. ft. per person for teaching purposes. Amount of water area per bather depends on size and shape of pool, ages of the bathers, width of deck and extent of sunning area, and nature of activity in which participants are engaged.

Reference	Facility	Standard
(50) Gabrielsen and Miles, Sports and Recreation Facilities for School and Community, p. 177	pool	15 sq. ft. of water surface for each bather; 30 sq. ft. of water surface for each swimmer. A bather is a person who does not go into water over 5 feet in depth. Deck area should always equal or exceed square footage of water area since not more than 1/4 of the swimmers will be in the water at any one time. For cities under 30,000 in population, the maximum daily attendance expected at pools is 5% to 10% of total population.
(86) National Recreation and Park Association, Bulletin No. 50, p. 38	pool	8000 to 5250 sq. ft. of water surface per pool. There should be from 2 to 3-1/2 times more paved deck surface than water.
(128) Texas Comprehensive Outdoor Recreation Plan, Vol. 5, Section 14.4	pool	30 sq. ft. of water for each swimmer in the water. 2 to 1 proportion of deck area to water area.
	beaches	150 sq. ft. of water for each swimmer in the water. 300 sq. ft. of land for each swimmer not in the water.
(42) FHA Bulletin: Facts and Suggestions on Swimming Facilities, pp. 1-6	pool	Minimum of 20 sq. ft. of combined pool and deck area for each person using the pool. Standard recommended by The National Swimming Institute.
(30) Corps of Engineers, Delaware River Basin Report, p. W-33	beach	50 sq. ft. a person

SWIMMING

Reference	Facility	Standard
(119) Soil Conservation Service, Recreation Memorandum-3, p. 3	beach	100 to 200 sq. ft. of swimmable water per swimmer. 50 to 100 sq. ft. of beach per swimmer. Between 15% to 30% of swimmers are in the water at one time.
(87) National Recreation and Park Association, Bull. no. 51, pp. 6-8	beach	Most of the time there are more persons on the beach sunning than in the water. Since the amount of usable water space per person ranges from 50 to 100 sq. ft. the available site will determine the capacity of a particular bathing beach.
(16) BOR, Water-Oriented Outdoor Recreation: Lake Erie Basin, p. D-9	beach	75 sq. ft. of beach per person. Turnover factor is 1.5.
(132) Outdoor Recreation Plan for the State of Vermont, p. 93	public beaches or pools	Enough public beaches or pools to serve one tenth of the population at any one time. 2 linear feet of beach per user. Public swimming to be available within 10 miles of every family.
(99) The Comprehensive Outdoor Recreation Plan for New Jersey, p. 9	swimming and boating areas	1.25 acres for each 1000 population.
(45) Federal Power Commission p. 3	beach and swimming areas	Beach and swimming areas usually have a minimum shoreline length of 100 feet and a sand bottom. Larger areas have about one foot of shoreline and a strip of beach extending 200 feet from the edge of the water for each five swimmers per day. Two single bath-change houses (or one house partitioned for men and women) are usually provided at each swimming area that attracts 50 or more peak-day swimmers.

Reference	Facility	Standard
(135) Comprehensive Plan for Wisconsin, Outdoor Recreation, p. G-8	beach, rural area	3 supporting areas for each acre of beach. The acre of beach accommodates 185 swimmers, over 12 years old, at any given time. This provides 200 sq. ft. of beach per swimmer. With an average daily turnover of 3, the acre of beach and its 3 supporting acres accommodate 555 swimmers per day.
	beach, urban area	4 supporting acres for each acre of beach. The acre of beach accommodates 370 swimmers at a time. This provides 100 sq. ft. of beach per swimmer. With an average daily turnover rate of 3, the beach area accommodates 1110 swimmers per day.
(15) Bureau of Reclamation, p. 27	beach	One unit consists of 40 ft. of shoreline extending back approximately 550 ft. with space for related activities, parking and buffer strip.
(63) Louisiana Parks and Recreation Commission, p. 3.0.14	beach	A shoreline swimming unit should have a length of 600 ft. and a width of 665 ft. (565 ft. of width is land and 100 ft. is water). Maximum shoreline length should not exceed 3600 ft. A minimum unit of 9.2 acres (1.4 acres of water and 7.8 acres of land) has a 200 foot wide beach or play area and a 100 foot wide buffer zone for installation of utilities, tables, etc. The balance, 265 ft., accommodates 300 cars at a time. Minimum facilities are a change house, and sanitary facilities. At any one time an optimum capacity of 1200 persons may use the minimum shoreline facility. A turnover rate of 3 is expected. This allows 3600 persons to use the area on an average summer Sunday or 461.5 user days per

Reference	Facility	Standard
		acre of land and 2571 user days per acre of water. This would be .0022 acres of land and .0004 acres of water per user day or 110 square feet per person per user day.
	pool	A minimum pool unit is one acre. It has space for a pool 75 ft. by 36 ft. or 2700 sq. ft. Facilities include bath house, filters, safety and sanitary equipment, and parking space for 90 autos. The pool provides space for 203 persons at one time with a turnover rate of 3; daily capacity would be 609 persons. This amounts to .0002 acres per person or 4.4 sq. ft. of water per person per user day.
(97) Nevada Department of Conservation and Natural Resources	shoreline	Average party is 4 persons, with 20 parties per acre. 40 persons are accommodated on .5 acre. One linear foot of shoreline per swimmer. Turnover rate is 2.
	neighborhood pool	60 persons are accommodated on .5 acre.
	community pool	150 persons are accommodated on 2.5 acres.
(28) Connecticut Department of Agriculture and Natural Resources, p. 41	swimming	Instant capacity of 3% of state population at state saltwater facilities and 3% at state fresh-water facilities.

HIKING, NATURE STUDY, AND HORSEBACK RIDING

Reference	Facility	Standard
(21)*California Public Outdoor Recreation Plan, Part II, p. 85	hiking for one day or less	Well defined and maintained tread up to 10 ft. wide, grades not to exceed 5% average with a maximum of 15%. Minimum parking for 25 autos at any access point. On short, scenic, well known trails this might be extended to 100 auto parking spaces.
	hiking for extended trips	Well defined trail with average grades of 5% and none to exceed 15%. Overnight hiking trails should be provided at intervals of about 5 hours hiking time. Minimum size of 3 to 5 acres.
(23) Carbon County, Pa. (Mauch Chunk Watershed) Table 5	hiking trail	Minimum of 10 acres provide a 3 mile trail, and a 1-1/2 mile trail.
(134) Wisconsin Department of Resource Development, p. 64	trail, hiking and nature hiking	Minimum of one mile of trail on public lands for each 20 persons. Trails located preferably in public parks and forests.
(110) Placer County Recreation Committee, pp. 7-9	hiking trail	One mile of trail for every 4 persons.
(30) Corps of Engineers, Delaware River Basin Report, p. W-34	trail facilities	One mile per 5000 visits.
(14) Bureau of Land Management	riding and hiking trails	Trails should be located to offer hikers or riders as many interesting vistas or views as possible. Interpretive signs should be used. On extended trails rest stops should be about every 3-5 miles and overnight stops, about every 10-20 miles. In heavily used areas, overnight stops may be equipped with tables, fireplaces, and pit toilets. The

*(See footnote on page one)

Reference	Facility	Standard
		trail should be planned with numerous access points and interconnecting links. Average sustained grades of trails should not exceed 8%; sections of 4% or less, at least 500 ft. in length, should be used every mile if practical. At the beginning of an ascent, "pick up" the grade slowly at a rate of 1% per 100 ft. of trail. Width of trails vary, depending upon use as shown below: (a) hiking trails will be as narrow as possible to permit single file use, with widened areas every 200 to 500 yds. where terrain permits. (b) riding trails where no pack stock is used can be a little wider than a hiking trail with more frequent passing areas. (c) a pack trail needs 8 ft. of clearing although the tread will be considerably narrower. (d) an interpretive foot path will be about 4 ft. wide for medium use and 6-8 ft. wide for very heavy use. (e) multiple use trails will be designed for widest expected use.
(97) Nevada Department of Conservation and Natural Resources	urban trails	Average party of 4; 5 parties per mile. 40 persons per 3 acres. Turnover of 1.5.
(28) Connecticut Department of Agriculture and Natural Resources, p. 42	hiking and nature walking	Instant capacity of .5% of State population on State or other public walking or hiking trails.
(135) Comprehensive Plan for Wisconsin, Outdoor Recreation, pp. G-7, G-8	nature trail	50 people per mile of trail. Trails are 1 to 2 miles long. With a turnover rate of 8, there are 400 people per mile of trail per day.

Reference	Facility	Standard
	rural hiking trail	40 hikers per mile of hiking trail per day.
	urban hiking trail	90 hikers per mile of hiking trail per day.
(63) Louisiana Parks and Recreation Commission, pp. 3.0.17, 3.0.18	hiking trail	A hiking trail should be 10 feet wide over a distance of 20 miles. It requires 24 acres of land. In addition, 10 acres of parking and camping area are needed. This includes two camp sites of five acres each, 15 to 20 miles apart, making a total of 34 acres. Potable water should be available at six mile intervals. About 20 hikers per mile of trail is capacity. Since a trail of 20 miles takes about five hours to hike during daylight hours, a turn-over rate of 5 is considered reasonable to produce 100 hiker user days. This amounts to .34 acres per user day, or 2.96 user days per acre.
	historical trail	An historical trail should be 10 feet wide and have interpretive facilities.
	nature trail	A nature trail is estimated as 10 feet wide and two miles in length. The trail occupies an area of 2.4 acres. About 10 persons per mile of trail is carrying capacity. A nature trail is estimated to be in field use about four hours during the day. This produces 33 optimum user days per acre, which means .072 acres are needed per user day.

HIKING, NATURE STUDY, AND HORSEBACK RIDING

Reference	Facility	Standard
	designated horse trail	Generally, riding trails are ten feet in width over a distance of 20 miles, and encompass 24 acres of land. It will require two camping sites of five acres, 15 to 20 miles apart. One horse per mile is trail capacity People use a horse trail in groups of four or five. Since a trail of 20 miles will take about 3.3 hours to ride, a turnover of 2 is considered a reasonable capacity to produce 132 users per optimum day, or 3.88 user days per acre. This amounts to .258 acres per user day.

PICNICKING

Reference	Facility	Standard
(106)*Recreation and Open Space in the Onondaga-Syracuse Metropolitan Area, p. 19	picnic area	3 acres of picnic area for every 1000 persons. Located in county parks of 12 acres for every 1000 persons.
(119) Soil Conservation Service, Recreation Memorandum-3, Supplement-3, p. 3	picnic area	8 to 10 picnic tables per acre for a family unit. 16 picnic tables per acre for organized groups. 10 picnic tables for every 100 people a day based on an estimate that each table will be used by 2 parties a day with 5 people per party. Located within 1 hour's drive or about 50 miles from a city of 20,000 people or a group of population centers adding up to that equivalent.
(21) California Public Outdoor Recreation Plan, Part II, p. 84	family picnic area within communities	16 units per acre. A unit consists of table and available cooking facilities. 600 activity days annually per unit. 1 off-street car space a unit. The primary picnicking group to plan for is the family. Facilities should be placed so that there is a proper balance of the 3 major types of units.
	family picnic area outside communities	8 units per acre, located outside communities. 400 activity days annually per unit. 1 car space a unit.
	group area	25 units per acre. 600 activity days annually per unit. 50 car spaces for every acre 25 units.
	wayside picnic area	16 units per acre. 1 car space a unit.

*(See footnote on page one)

PICNICKING

Reference	Facility	Standard
(23) Carbon County, Pa. (Mauch Chunk Watershed) Table 5	picnic area	100 acres of picnicking for every 6000 people. Area includes 1200 picnic tables, 12 shelters, 14 water faucets, and 18 sanitary units. Minimum size of 100 acres. Recommended are 1200 parking spaces, based on the assumption that 80% of all visitors will arrive by cars and that each car will have an average of 4 persons. Needed is a 10 acre parking area providing 350 sq. ft. per car.
(110) Placer County, Calif. Recreation Commission pp. 7-9	picnic area	15 people an acre. 3.5 persons in a picnic group. Expected turnover of twice daily.
(27) Cleveland Regional Planning Commission, p. 19	picnic area	44 persons an acre. Best location is bottomland, preferably the flood plains, in a wooded place with a low density of trees.
(107) ORRRC Report No. 1, p. 92	picnic area	20 people an acre. An average design use density was calculated from data reported on inventory forms.
(48) Forest Service Handbook, p. 76	picnic unit	Units should be spaced 100 feet apart for privacy and to prevent overuse of site. A unit consists of 1 stove and 1 table.
(75) National Park Service, Handbook, pp. 1-5	picnic area	10 to 15 picnic sites an acre. Minimum size of 90 to 120 picnic sites an area. Each table accommodates 6 to 8 people; 2 to 3 tables per fireplace.
(99) The Comprehensive Outdoor Recreation Plan for New Jersey, p. 9	picnic areas	3 acres for every 1000 persons.

Reference	Facility	Standard
(10) A Statewide Comprehensive Outdoor Recreation Plan for Arkansas	picnic area	4 to 8 tables per acre. Each table accommodates 6 to 8 persons. Each area of six tables should have 1 fire pit and two charcoal cookers.
(77) National Recreation and Park Association, Bulletin No. 4, pp. 8-22	picnic area	An average of 10.5 tables per acre with 1 charcoal grill per 5.1 tables. Saturation rate is an overall maximum average of 220.1 picnickers a day per acre of land.
(7) American Society of Planning Officials, p. 32	picnic sites	Picnic facilities should be developed so that there is a balance among 3 major types of facilities: (a) those within communities; (b) those outside communities (beyond the metropolitan fringe);and (c) those along highways.
	picnic areas within the community	Within the city, people are willing to travel an average distance of 5 miles from home to a picnic area. Picnic areas within the community should have a maximum of 16 picnic units per acre, with each unit accommodating not more than 8 persons.
	organized group picnic area within the city	Organized group picnic areas within the city should accommodate 200 persons per acre, with an additional 1/3 acre for each group area to accommodate 50 cars.
	picnic areas on the fringe of the city	8 units per acre with 1 parking space for each unit.
	picnic areas at wayside rests along major highways	Maximum density of 16 units to an acre, with no fewer than 4 units at a single location.

Reference	Facility	Standard
(32) Corps of Engineers Manual, p. 3	picnic areas	1 minimum, at or near dam or other major project structure and at all public use areas, whether as a separate activity or combined with other types of public recreation activities. Each picnic area to comprise 5 to 50 tables. Minimum of 1 picnic table for each 4000 annual visitors or 1 picnic table for each 100 to 200 peak-day visitors, or 1 picnic table for each 10 to 15 picnickers. Minimum of 1 parking space for each picnic table. An individual shelter for each table where no tree cover is available in picnic area. A group type shelter for each 225 picnickers per peak-day regardless of available tree cover.
(103) G. Nez, Urban Land, p. 4	picnic areas	4 acres for every 1000 people.
(14) Bureau of Land Management	picnic grounds	A picnic ground preferably will be planned on a walk-in basis with multi-car parking areas. Density will range from 8 to 12 family units per acre.
(97) Nevada Department of Conservation and Natural Resources	family-non urban area	Average party size of 4; 8 parties per acre. One picnic unit accommodates 4 persons per .125 acre. Rate of turnover 1.5.
	group area	Average party of 150 accommodated by 25 individual units on 2 acres. Rate of turnover is one.
	wayside area	Average party of 4; 8 parties per acre. 40 persons accommodated by 10 units on 1.25 acre.

PICNICKING

Reference	Facility	Standard
(15) Bureau of Reclamation p. 27	family picnic area	8 units per acre. One unit includes table and cooking facilities, and allows for parking, sanitation facilities, open space and buffer strip.
	group picnic area	25 units per acre. One unit includes 25 tables, cooking facilities, and allows for parking, sanitation facilities, open space, and buffer strip
(63) Louisiana Parks and Recreation Commission p. 3.0.15	rural picnic area	For areas outside a community: 8 picnic tables are required on one acre with an additional 19 acres of undeveloped area. In addition, 4 ovens and 4 trash receptacles are needed. Tables are used an average of 1.6 times during a day; 4.8 persons per table is the average attendance. An acre of picnic area will have an optimum use of 38.4 persons at one time, provides 61.4 user days during an optimum day of use or .0016 acres per user day for the table area, or .33 acres of the total area per person per user day.
	urban picnic area	For areas inside a community: 16 picnic tables are required on one acre with an additional 9 acres of undeveloped land. In addition, 8 ovens and 8 trash receptacles are needed. An acre of picnic area will have an optimum use of 76.8 persons at one time, with 4.8 persons per table, and used at a rate of 1.6 times during a day. It provides 112.9 user days during optimum day use of .009 acres per user day for the table area, or .08 acres of the total area per person per user day.

PICNICKING

Reference	Facility	Standard
(45) Federal Power Commission, p. 2	picnic area	One picnic table is usually needed for each 4000 visitors, or each 10 to 15 daily picnickers. The distance between tables is normally 50 ft. There is a ratio of one fireplace or grill for every 3 or 4 picnic tables. For federal power projects close to population centers, group facilities such as a conveniently located large fireplace, a group of tables and a playground area may be needed also.
(135) A Comprehensive Plan for Wisconsin, Outdoor Recreation, p. G-6	rural picnic area	One developed acre for each 40 picnickers at 8 tables per acre with 19 undeveloped acres (allowing less than 1/2 acre parking for 10 cars). A turnover rate of 1.6 persons per table and, with over 3 people per table, 40 persons per acre each day is expected.
	urban picnic area	One developed acre per 80 picnickers at 16 tables per acre, plus 9 undeveloped supporting acres.
(28) Connecticut Department of Agriculture and Natural Resources p. 41	picnicking	Instant capacity of 2% of state population at state facilities.

Reference	Facility	Standard
(119)*Soil Conservation Service, Recreation Memorandum-3, Supplement-3, pp. 1-2	camp sites	3000 sq. ft. per unit. A unit includes tent space, vehicle parking space, and use area for cooking, eating, wood storage, trash disposal, etc. 14 units an acre or 56 people an acre. Camp sites average 4 persons each. Dimension of tent space is 16 x 16 ft. or 12 x 18 ft. Camp areas should be within 300 miles of population. Privacy size is 4000 to 8000 sq. ft. a unit; 5 - 11 units an acre or 20-44 people an acre.
(75) National Park Service Handbook, "Special Park Uses: Campground Planning," pp. 1-5	camp sites	One campground should provide for a minimum of 90 to 120 camp sites on 12-30 acres, with 4 to 7 camp sites per acre. Each camp site should contain a parking space, a tent area, a table and bench combination, and a camp stove.
(134) Recreation in Wisconsin, pp. 71-72	camp sites	An average of 15 people or about 3 sites an acre.
(110) Placer County, Calif. Recreation Commission p. 35	camp sites	4 units an acre. 3.7 persons a camp. Includes parking requirements.
(21) California Public Outdoor Recreation Plan, Part II, p. 84	family, tent or trailer	4 units an acre. A unit includes table, cooking facilities, space for tent or bedding and screening. 300 activity days annually per unit.
	family, trailer	1 acre of camp area for 15 units, or about 1 acre for 60 people. A unit includes prepared parking apron 50 ft. x 12 ft.; table, utility connections. Level of use about 1000 to 1200 activity days a unit.

*(See footnote on page one)

CAMPING

Reference	Facility	Standard
	group	5 acres for 50 persons for short periods of time. The 5 acres include sanitary, water and basic cooking facilities, open space for bedding or tents and spaces for 25 automobiles. 350 activity days annually per acre.
	organizational	5 acres for 100 persons. The 5 acres include developed permanent facilities and structures for eating and sleeping. Parking space for minimum of 50 cars. 350 activity days annually per acre.
	en route	10 units an acre. 1 car space and space for trailer per unit, also parking space for highway trailers whose drivers are resting.
(23) Carbon County, Pa. (Mauch Chunk Watershed)	tent and trailer camps	50 acres for 400 people. Minimum of 50 acres for 100 camp sites. 8 acres for parking 100 cars. An average of 4 persons a car.
(107) ORRRC Report No. 1, p. 92	campgrounds	4356 sq. ft. a person. 10 people an acre.
	trailer camps	3350 sq. ft. a person. 13 people an acre.
	cabins	5445 sq. ft. a person. 8 people an acre.
(32) Corps of Engineers Manual, p. 3	tent or trailer camp sites	One camp site for 10 campers or one for each 7500 to 10,000 annual visitors. 4 to 7 sites per each tent and trailer camp area. Tent space dimension of 15 ft. x 15 ft.

CAMPING

Reference	Facility	Standard
(101) New Mexico Comprehensive Plan for Outdoor Recreation, p. 62	camping sites	15 camp sites per 1000 population. Camp facilities are required in or near towns for accommodating tourists (campers en route), within 65 to 125 miles of home for weekend camping, and for vacation camping (destination campground). 4 camp units an acre in destination campgrounds at vacation spots. Camp areas primarily for campers en route may have as many as 10 units per acre.
(10) Comprehensive Outdoor Recreation Plan for Arkansas	camping area	3 to 4 designated camp spaces an acre.
(91) National Recreation and Park Association, Bulletin No. 16, pp. 12-18	family camping facility	Average camper prefers 45 to 100 feet between camp sites. Number of units for a forest campground where development is somewhat primitive may be 20-30 camp sites. Where modern toilet facilities, electricity, running water, etc., are installed, development may be 60-70 camp sites to justify costs of these facilities.
(78) National Recreation and Park Association, Bulletin No. 34, p. 12	camp site	Spacing of camp sites should be based upon carrying capacity of land and its ability to hold up under the traffic. For privacy, a site should have a minimum of 2500 sq. ft. or a lot 50 ft. x 50 ft.
(103) G. Nez, Urban Land, p. 4	camping	10 acres per 1000 population. Ideal size 500 to 1000 acres. Area may be located within large district park or regional park.
(45) Federal Power Commission, p. 2	camp area	A tent space 15 ft. by 15 ft. for each camp site, with a separation of 75 ft. between each site, is provided for each 10 campers or for each 8000 to 10,000 visitors annually. A camp area has a minimum of 7 tent or trailer sites varying from 4 to 7 sites per acre. Trailer

Reference	Facility	Standard
		spaces are separated from tent sites when feasible. One fireplace and one anchored table and bench combination is usually provided at each tent site. For projects near population centers a group camping area with centrally located fireplaces, tables, and playground area is usually provided.
(97) Nevada Department of Conservation and Natural Resources	family, tent	Average party of 4 persons, 2.5 parties per acre. One unit on .4 acre accommodates 4 persons. Turnover rate is one.
	family, trailer	Average party of 4 persons, 8 parties per acre. One unit accommodates 4 persons on .125 acre. Turnover rate is one.
	group, organization	One group camp for each 25,000 population. Average party of 100 persons. 25 units accommodate 100 persons on 5 acres.
(135) Comprehensive Plan for Wisconsin, Outdoor Recreation, p. G-7	camp area	One acre of developed land accommodates 5 camp units. 19 acres of undeveloped land supports this one acre. At 3 campers per unit, 20 acres accommodates 15 campers per day.
(14) Bureau of Land Management	camp site	Camp site should be a well drained, gently sloping, rock-free area. Sites should be located away from meadows or bogs and where possible, downstream of the potable water source.
	trail campground	A trail campground may be constructed where justified by overnight use of a trail. Most back-country campgrounds will be designated areas with no facilities. However, fireplaces, tables, pit toilets, water and refuge disposable facilities may be constructed to reduce the impact in heavily used or fragile areas. Units are spaced generously apart.

CAMPING

Reference	Facility	Standard
	hunter campground	A hunter campground is constructed on single lane, light duty roads or where visitation is very light or seasonal. Development of site is minimal and includes pit toilets and garbage facilities. Tables, fireplaces, and water development may be provided. Spacing of units is about 150 ft. on centers, or of average density. (Camp site spacing averages between 4 and 6 units per acre; average is 5, low is 4).
	walk-in campground	Walk-in camping around multi-car parking areas may be provided either as a separate section of a standard campground or where terrain makes design most fitting to the site. All facilities (comfort stations or pit toilets, water station, and garbage cans) are clustered around parking areas. Each site has a table and bench combination, fireplace and graded tent area, and is designed primarily for tent campers. Wheelbarrows or carts may be provided to transport camping gear to site, but no other wheeled vehicle is permitted beyond parking areas. Spacing of units is about 105 ft. on centers, or of average density.
	standard campground	A standard campground is designed to offer as much camping experience as possible. Each unit is provided a table, fireplace or fire circle. Graded tent area, garbage facilities, pit toilets or comfort stations, and water hydrants are provided. Spacing between units is about 105 ft. to 120 ft. along centerline.

CAMPING

Reference	Facility	Standard
	high density campground	The high density campground is provided where use is expected to be continuous and intensive over normal visitor season, and where primary activity sought is not camping. If primary purpose is for lodging on a scenic trip or a stop on a fishing tour, the campground may be more intensely developed. The units have table, fireplace, and tent area. Density of campground is average to high. Garbage facilities and comfort stations are provided. Electricity and water stations may be provided at comfort stations. Spacing is about 95 ft. to 105 ft. along centerline.
	family campground	Family group campgrounds may be provided on a separate portion as part of either standard or high standard campground. Units are grouped around a large or several small parking areas providing space for a minimum of 4 vehicles. Each unit has two 7 foot tables, a fireplace, and two leveled tent areas. Each group of two units shares a small campfire circle. Garbage, water, and pit toilets are at or near parking areas. Parking areas accommodate trailers or pick-up campers reasonably adjacent to the developed unit. Spacing shall be about 105 ft. to 120 ft. along centerline. Where use warrants, campgrounds should have a minimum of 20 family units.
	organized group campground	Organized group campground is provided in a completely separate campground or a widely separated section of a standard or high standard campground. Camp sites are clustered near multi-car parking areas.

Reference	Facility	Standard
		Each unit includes four 7 foot tables, four tent areas, a large grill fireplace, a fire circle, and a water hydrant. Pit toilets comfort stations and garbage facilities are located at appropriate intervals around parking areas. For best operations, large campgrounds comprise a number of integrated though independent sections. The number of family units per section depend upon topography and economical distribution of comfort stations or pit toilets.
(15) Bureau of Reclamation p. 27	family camp unit	3 units per acre. 1 unit includes table, cooking facilities, space for tent or trailer and car, and allowance for sanitation facilities, open space, parking and a buffer strip.
(63) Louisiana Parks and Recreation Commission, p. 3.0.16	tent camp	An acre of family tent camping carries an optimum of 14 units. A unit includes spaces for tent pads, parking, tables and fire pits. On the site there is potable water and toilet facilities. 19 acres of undeveloped land support this one acre. A camper group consists of an average of 2.93 persons 12 years and older. The turnover rate is one per unit. An acre of family tent camping produces 11.7 days per optimum day of use. This is .0855 acres per day.
	trailer camp	An acre of trailer camping carries an optimum of 14 units. A unit includes space for the trailer and car. On the site there are electrical hookups, water hookups and a dump station. There should be 19 acres of undeveloped land to support this one acre.

CAMPING

Reference	Facility	Standard
(48) Forest Service Handbook	camp, family unit	A standard family camp unit includes a table, stove, parking spur, and space for a tent. Units are located about 50 ft. from the edge of camp roads, and at least 100 ft. from lakes, streams and main roads. Camp units are spaced about 100 ft. apart. It is usually better to plan a separate campground for trailers. Normal development consists of three family units per acre. Average dimensions for camp unit parking spurs are 12 ft. by 30 ft. and for trailer camp units, 12 ft. by 55 ft.
(28) Connecticut Department of Agriculture and Natural Resource, p. 41	camping	Instant capacity of .5% of state population at state facilities.

HUNTING

Reference	Facility	Standard
(134) Recreation in Wisconsin, p. 67	goose hunting	Blinds--200 yards apart.
	pheasant and small cooperatives	10 acres per hunter.
	duck hunting	1 blind for each 9 acres of marsh habitat.
	deer hunting	1/10 sq. mile per hunter.
	small game hunting	8 acres of range per hunter
(117) Soil Conservation Service, "Consideration for 7 categories of Recreation", p. 21	hunting enterprise	A farm large enough to encompass controlled shooting activity should be 300 to 500 acres, with 50 acres for every 4 hunters. It should be located within 2 hours' drive of 20,000 or more people who have a high interest in hunting.
(41) FHA Bulletin, "Facts and Suggestions on Shooting Preserves," pp. 1-4	shooting preserves	If possible, preserves should be located within 30 or 40 miles of a metropolitan center, on terrain that is flat to gently rolling. Ideal size is 300-500 acres. A successful operator should have approximately 5000 birds annually for release.
(28) Connecticut Department of Agriculture and Natural Resources p. 41	hunting	Instant capacity of .5% state population at state owned or leased lands.

*(See footnote on page one)

DRAMA AND CONCERTS

Reference	Facility	Standard
(22) California Committee on Planning for Recreation, Park Areas and Facilities, p. 64	outdoor theater	Size of 20 acres. 4.2 acres of parking provided for 600 automobiles.
(103) G. Nez, Urban Land, p. 4	outdoor theaters and band shells	One acre for every 25,000 people. Ideal size of 5 acres. Located within a district park.

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☆U. S. GOVERNMENT PRINTING OFFICE: 1967 O - 267-787

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